

Emergency and elective approaches to femoral hernias

Femoral hernia surgical approach

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Abstract

Aim: Femoral hernias often occur with incarceration, resulting in obstruction and strangulation. They usually require emergency surgical intervention and sometimes bowel resection may be required. The aim of this study is to compare the surgical results of femoral hernia cases in emergency or elective conditions.

Material and Methods: The medical files of 38 patients who underwent surgery in January 2015- March 2022 with the diagnosis of femoral hernia at the general surgery service at Necmettin Erbakan University Meram Medical Faculty Hospital were retrospectively examined. Demographic data, party-relevant information, surgical technique, content of sac, length of hospital stay, recurrence and complications according to the last polyclinic were retrieved from the patient files and electronic database.

Results: The gender distribution of the cases was 81.6% (n=31) females and 11.5% (n=7) males. The mean age was 45.74±16.11 years. The complication rate among the groups was significantly higher in those undergoing emergency surgery (p=0.014). No significant difference was found between the two groups in terms of the side of hernia (p=0.671).

Discussion: Femoral hernia is more common in women. There are different repair techniques. More extensive prospective research is needed to compare surgical techniques and outcomes.

Keywords

Femoral Hernia, Elective Surgery, Emergency Surgery

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Introduction

The incidence rate of inguinal hernia is 3-8% [1]. Femoral hernias account for 2-4% of inguinal hernias [2]. They are clinically important as they usually require emergency surgery and bowel resection [3,4]. It is reported that emergency femoral hernia surgery increases postoperative morbidity while elective surgery does not [1].

The rate of cumulative incarceration in inguinal hernias has been increasing over the years. However, in patients who prefer watchful waiting instead of surgery as the first choice, the reason for surgery in the following years is pain, which affects the quality of life in general. It has been determined that more than 70% of those who prefer watchful waiting, among patients over 65 years of age, decided to undergo surgical intervention within 10 years of follow-up. [5]. The classic method of surgery is McVay surgery, which has a recurrence rate of up to 10% -15%. Since Lichtenstein and Shore began using plaque to treat femoral hernia in 1968, plaque mesh has become an accepted technique. The infrainguinal plaque technique has always been popular because of its safety, simplicity and effectiveness [6,7]. In addition, plaque mesh repair is reported to cause recurrence, foreign body sensation, and seroma during the postoperative period [8].

In recent years, the use of the inguinal approach in the preperitoneal repair of femur hernia has been increasing. There are publications indicating that this technique yields satisfactory results [9]. However, this procedure has some disadvantages such as technical deficiencies, long duration and disruption of the normal structure of the inguinal canal [10]. Therefore, although a large number of techniques are available for hernia repair, there is still controversy about the optimum management of hernia.

The aim of this study was to compare and evaluate the results of patients undergoing femoral hernia repair under emergency or elective conditions.

Material and Methods

The medical files of 38 patients who underwent surgery in January 2015- March 2022

with the diagnosis of femoral hernia at the general surgery service at our hospital were retrospectively examined. Demographic data, party-relevant information, surgical technique, content of sac, length of hospital stay, recurrence and complications according to the last polyclinic were retrieved from the patient files and electronic database. The study was conducted according to the Declaration of Helsinki 1964. This study was approved by Necmettin Erbakan University Meram Medical Faculty ethics committee with 21-07-2023 dated and 2023/4523 numbered. The patients were divided into two groups: emergency surgery group (Group A) and elective surgery group (Group B). Patients who underwent inguinal hernia surgery for recurrence were excluded from the study. Oral fluid intake was started at the 6th postoperative hour in patients without bowel resection. Oral feeding was started after 24 hours in patients who had undergone emergent surgical bowel resection and anastomosis and had been followed up for at least 3 days in the hospital.

Statistical analyses were performed using Windows SSPS

(SPSS, Chicago, IL, USA). Results are presented as mean and standard deviations. Chi-square and Mann-Whitney U tests were used for comparison of the groups. $P < 0.05$ values were considered statistically significant.

Surgical Techniques

Informed consent forms were obtained from all patients preoperatively. Preoperative prophylaxis was performed with a second-generation cephalosporin. The Lichtenstein repair was performed after the inguinal ligament was opened and the femoral canal was visualized and converted into the groin. The Mc-Vay repair, modified Lichtenstein technique, Plug mesh repair and laparoscopic TAPP (transabdominal preperitoneal) techniques were applied. In the presence of impaired circulation in the intestinal segment of hernia, 10 minutes of hot compress was first applied. When bowel circulation, color, and movement were considered normal, resection was not performed (Figure 1). However, if an ischemic bowel segment was detected, segmental bowel resection and functional end-to-end anastomosis were performed.

Ethical Approval

Ethics Committee approval for the study was obtained.

Results

The gender distribution of cases was 81.6% ($n = 31$) females and 11.5% ($n = 7$) males. The mean age was 45.74 ± 16.11 years. There were 14 patients in Group A and 24 patients in Group B. No significant difference was found between the two groups in terms of the side of hernia ($p = 0.671$) (Table-1). Of the patients, 36.8% (14) underwent emergency operation and 63.2% were operated electively. All patients who underwent emergency surgery were repaired by open technique. 12.5% of the electively operated patients (3) were operated by laparoscopic method. In Group A, an omentum was detected in the hernia sac in 71.4% ($n: 10$) of the cases, and a strangled small intestine segment was detected in 28.6% ($n: 4$). In two of these, resection was not performed after perioperative hot compress application and normalization of circulation and color after control. In the other two cases, resection and anastomosis were performed because of ischemia. In Group B, 16.7% of the patients ($n: 4$) had an omentum in the hernia sac. In 83.3% of the elective cases ($n: 20$), the hernia sac was empty. Organ compression in the hernia sac between groups was significantly higher in Group A ($p < 0.01$).

Five patients in Group A (35.7%) were operated with the Mc-Vay technique, six patients (42.9%) were operated with the modified Lichtenstein technique and three patients (21.4%) underwent Rutkow Plug. In two patients, resection was performed from the existing incision without laparotomy due to the diagnosis of intestinal (small) ischemia, followed by end-to-end anastomosis. Laparoscopic TAPP was applied to 3 patients (12.5%) in Group A, Mc-Vay technique to 6 patients (25%), the modified Lichtenstein technique to 11 patients (45.8%) and Rutkow Plug to 4 patients (16.7%) (Table 2).

No recurrence was detected in any of our patients. Four patients had postoperative complications (Table-3). Complication rate among the groups was significantly higher in those undergoing emergency surgery ($p = 0.014$). The duration of hospital stay was significantly longer for patients in Group A than those in Group

B ($p = 0.009$). The mean operative time was 62.7 ± 17.3 hours. No significant difference was found in the duration of surgery between the groups ($p = 0.87$). The mean follow-up period was 11.3 ± 3.5 months.

Table 1. Demographic and clinical characteristics of the groups.

	Group A	Group B	p
Mean age (range)	52±19	42±13.2	P=0.20
Gender (female/ male)	11.3	20.4	p=0.57
Laterality (left/right)	6.8	12.12	p=0.67
Average length of hospital stay (days)	4.07±2.05	2.54±0.77	p=0.009
Average Follow-up period (Month)	12.14±4.97	10.95±2.51	p=0.89

Table 2. Surgical techniques.

	Mc-Vay (n:11)	Modified Lichtenstein (n:17)	Rutkow Plug (n:7)	Laparoscopic TAPP (n:3)
Group A	5	6	3	0
Group B	6	11	4	3

TAPP: Transabdominal preperitoneal

Table 3. Complications.

	Group A (n:14)	Group B (n:24)
Seroma	1	-
Wound infection	1	-
Hematoma	1	-
Pulmonary complications	1	-
Total	4	0

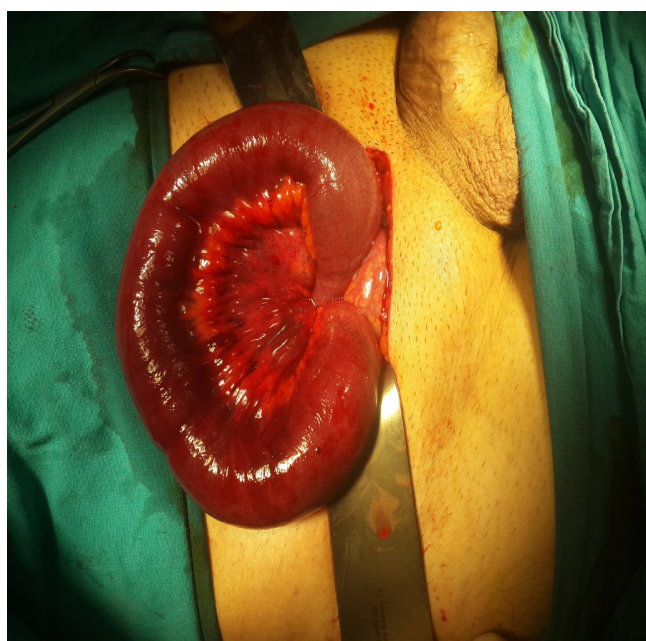


Figure 1. A patients with strangüle femoral herni.

Discussion

Approximately 75% of femoral hernia cases involve women. Several studies indicate that emergency surgery needs in femoral hernias are higher in females than in males [11,12]. In our study, most of the emergency and elective surgeries involved females and no significant difference was found between the groups in terms of male/female ratio. Although inguinal hernias are more common among abdominal wall hernias, the complication rate is higher in femoral hernias [1]. In addition, since the incarceration rate in femoral hernias reaches 40%, most patients present to the emergency departments [13,14]. In this study, 36.8% of the patients underwent emergency surgery and 63.2% were operated electively.

In emergency femoral hernia surgeries, organ (small intestine, omentum) incarceration is higher than in elective cases. As a result, the rate of small intestinal resection, length of hospital stay, and mortality may increase up to 10 times [15]. Çalık et al. report that organ resection is a factor that increases morbidity during femoral hernia surgery [16]. In incarcerated hernias, early diagnosis is reported to reduce complications [17]. All patients in Group A presented to the emergency department with an irreducible hernia and all had small intestine or omentum majus. In our study, 28.6% of the patients in Group A had strangled small intestinal segments in the hernia sac. Only 2 patients (5.2%) underwent segmental intestinal resection. No patient developed anastomotic leakage. The length of hospital stay was longer in patients who underwent intestinal resection. One of our patients developed postoperative atelectasis. He was discharged after 9 days of hospitalization.

McVay surgery, which is the repair of tissue in femoral hernias, has been performed for years (3-Haseki). Several studies have reported that no difference is found between tissue repair or mesh repair in terms of recurrence [11]. In a series of 3980 femoral hernia cases, recurrence rates are determined to be higher in meshless repair techniques. Although the complication rate in patients with intestinal resection is reported to be over 50%, synthetic patches are also recommended for resection and anastomosis [11,18]. In our study, none of the patients developed recurrence.

Patients were operated using Modified Lichtenstein, Rutkow plug, Mc-Vay and Laparoscopic TAPP repair techniques. In Mc-Vay repair, the infection rate is 8-23% and the seroma-hematoma rate is 12-26% [19]. The Rutkow plug technique is the main surgical technique in some series [5,16]. Although better postoperative results are obtained in mesh repair, several studies report that the mesh causes complications such as foreign body sensation, chronic pain, mesh migration and seroma [20]. In our study, Mc-Vay repair was performed in 11 patients, laparoscopic TAPP was performed in 3 patients, modified Lichtenstein was performed in 17 patients, and Rutkow plug repair was performed in 7 patients. Wound infection developed in one patient, hematoma developed in one patient, seroma developed in another patient and postoperative atelectasis developed in yet another patient.

Several studies have also reported similar results in laparoscopic or open-technique mesh repair [21]. In addition, laparoscopic repair is shown to shorten the operative time and length of hospital stay compared to the open technique in a

large series [22]. Although minimally invasive surgery is more popular nowadays, open method is preferred more in our clinic. Patients who underwent emergency surgery are reported to show up less frequently in follow-up appointments compared to patients operated electively in the postoperative period. [17] In our study, patients in both groups came to their follow-up appointments for an average of 11.3 ± 3.5 months, and no significant difference was found between the groups. The most important limitations of our study were the insufficient number of patients and retrospective nature.

Conclusion

Femoral hernia is more common in women. Femoral hernias often occur with incarceration, resulting in obstruction and strangulation. They usually require emergency surgical intervention. There are different repair techniques. More extensive prospective research is needed to compare surgical techniques and outcomes.

Limitations

Since the patient volume of the center where the study was conducted was low, the total number of patients is low despite 7 years of data collection. The laparoscopic technique was not applied to any of the patients who underwent emergency surgery. The results of this technique in emergency operations could not be evaluated.

Our average follow-up period after the operation was 11.3 months. More comprehensive results can be obtained with studies to be conducted with more patients and with longer follow-up periods.

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Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and human rights statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

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Conflict of interest

The authors declare no conflict of interest.

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